

**IN THE CLAIMS:**

1           1-19. (Cancelled)

1           20. (Previously Presented) An information searching device comprising:  
2           a buffer for storing data to be searched,  
3           a selector configured and arranged to select at least a portion of the buffer's con-  
4           tents; and  
5           a storage facility coupled to the selector so as to receive the selected portion of the  
6           buffer's contents, the storage facility having a plurality of associative memories sequen-  
7           tially configured and arranged such that the output from an upstream associative memory  
8           is provided to at least one downstream associative memory, the associative memory be-  
9           ing loaded with information against which data in the buffer is to be matched, wherein  
10           the information is translated into a Boolean function prior to being loaded  
11           into the associative memories, and  
12           each associative memory stores a segment of the Boolean function.

1           21. (Previously Presented) The information searching device of claim 20 further  
2           comprising preparser logic configured to extract one or more fields of a network mes-  
3           sage, and to place the extracted fields into the buffer.

1        22. (Previously Presented) The information searching device of claim 21  
2        wherein the preparser logic prepends the extract fields to the network message, and  
3        places both the network message and the prepended extracted fields into the buffer.

1        23. (Previously Presented) The information searching device of claim 22 wherein  
2        the information stored in the associative memories corresponds to one or more Access  
3        Control Lists (ACLs) specifying actions to be applied to network messages.

1        24. (Previously Presented) The information searching device of claim 23  
2        wherein the network message is an Internet Protocol Version 6 (IPv6) message.

1        25. (Previously Presented) The information searching device of claim 20  
2        wherein  
3        the information is first translated into a Binary Decision Diagram (BDD), and  
4        each segment of the BDD is translated into a Sum of Products (SOP) format prior  
5        to being loaded into its respective associative memory.

1        26. (Previously Presented) The information searching device of claim 20 further  
2        comprising a plurality of secondary memories each having a plurality of storage loca-  
3        tions, wherein  
4        a selected one of the secondary memories is associated with each associative  
5        memory,

6           each associative memory has a plurality of entries,  
7           each associative memory entry identifies a matching storage location of its asso-  
8       ciated secondary memory, and  
9           a downstream associative memory receives as an input a selected portion of the  
10      buffer and the matching storage location of the secondary memory associated with the  
11      upstream secondary memory.

1           27. (Previously Presented) The information searching device of claim 26 wherein  
2      the matching storage location of the secondary memory associated with the last of the  
3      associative memories indicates an action for the data stored in the buffer.

1           28. (Previously Presented) The information searching device of claim 20 is  
2      formed from:  
3           (a) one or more Application Specific Integrated Circuits (ASICs);  
4           (b) one or more Field Programmable Gate Arrays (FPGAs); or  
5           (c) at least one ASIC and at least one FPGA.

1           29. (Previously Presented) An information searching device comprising:  
2      means for selecting a portion of data to be searched; and  
3      means for searching the selected data portion for a predefined value, wherein  
4      the searching means includes a plurality of associative memories organized in a  
5      stream such that the output from an upstream associative memory is provided to at least

6 one downstream associative memory, the associative memories being loaded with infor-  
7 mation against which data in the buffer is to be searched, wherein  
8 the information is translated into a Boolean function prior to being loaded  
9 into the associative memories, and  
10 each associative memory stores a segment of the Boolean function.

1 30. (Previously Presented) The information searching device of claim 29 wherein  
2 the data to be searched is a network message having a plurality of fields that are searched  
3 for a predefined value.

1 31. (Previously Presented) The information searching device of claim 30 further  
2 comprising means for identifying an action to be applied to the network message being  
3 searched in response to matching a predefined value in a given field.

1 32. (Previously Presented) The information searching device of claim 31  
2 wherein the network message is an Internet Protocol Version 6 (IPv6) message.

1 33. (Previously Presented) The information searching device of claim 31  
2 wherein the action is one of forward, drop, encrypt and log.

1       34. (Previously Presented) The information searching device of claim 29 wherein  
2       each downstream associative memory compares its segment of information against the  
3       output from its respective upstream associative memory and the selected portion of data.

1       35. (Previously Presented) A method of searching one or more fields of a net-  
2       work message for a predefined value, the method comprising the steps of:  
3           loading a plurality of associative memories, which are organized in a stream, with  
4       information against which the fields of the network message are searched;  
5           storing at least one or more fields of the network message in a buffer;  
6           selectively applying at least part of a network message field from the buffer to an  
7       upstream associative memory to generate an output; and  
8           selectively applying at least part of a network message field from the buffer and  
9       the output of the upstream associative memory to a downstream associative memory;  
10          generating an action to be applied to the network message from the last associa-  
11       tive memory.

1       36. (Previously Presented) The method of claim 35 further comprising the steps  
2       of:  
3           prior to loading the information into the plurality of associative memories, trans-  
4       lating the information a Boolean function; and  
5           storing a segment of the Boolean function in each associative memory.

1       37. (Previously Presented) The method of claim 36 further comprising the step of  
2       providing a secondary memory for each of the associative memories, the secondary  
3       memories configured to store the outputs.

1       38. (Previously Presented) The method of claim 37 wherein the information  
2       loaded into the associative memories corresponds to one or more Access Control Lists  
3       (ACLs).

1       39. (Previously Presented) The method of claim 38 wherein each associative  
2       memory is a ternary content addressable memory (TCAM) supporting don't care  
3       values